ABSTRACT

The present invention discloses simple and yet highly efficient configurations of optical coherence domain reflectometry systems. The combined use of a polarizing beam splitter with one or two polarization manipulator(s) that rotate the returned light wave polarization to an orthogonal direction, enables one to achieve high optical power delivery efficiency as well as fixed or predetermined output polarization state of the interfering light waves reaching a detector or detector array, which is especially beneficial for spectral domain optical coherence tomography. In addition, the system can be made insensitive to polarization fading resulting from the birefringence change in the sample and reference arms. Dispersion matching can also be easily achieved between the sample and the reference arm for high resolution longitudinal scanning.